

AMENDMENTS TO THE CLAIMS

This Listing of Claims will replace all prior versions and listings of claims in this application.

Listing of Claims:

1. (Currently Amended) A mesh access network, comprising:
at least one base-station comprising a plurality of sectors;
each sector comprising: ~~[of] a plurality of terminal nodes, said terminal nodes comprising: both indoor terminal nodes each comprising an antenna; and~~
~~outdoor terminal nodes[,] each comprising an antenna; and comprising~~
~~a plurality of outdoor repeaters, wherein each of the plurality of terminal nodes comprises an antenna; , wherein said indoor and outdoor terminal nodes and repeaters in~~
~~each section are arranged in a tree structure starting from said base-station[,], wherein~~
~~said base-station sectors use different frequency bands that are located in alternate sectors~~
~~of said base-station; and~~
a module for interference management and sector reuse comprising network management of frequency, time, and directionality.
2. (Original) The network of Claim 1, comprising:
at least one Base-Station → Level1-repeaters link; and
at least one Repeater → Repeater/Terminal or Base-station → Terminal link.
3. (Original) The network of Claim 2, wherein said Base-Station → Level1-repeaters link can be active in all sectors in all cells simultaneously due to of transmitter and receiver antenna directionality;
wherein a predetermined percentage of all time-slots are preferably reserved for Base-Station → Level1-repeaters links.

4. (Previously Presented) The network of Claim 2, wherein said in-section Repeater → Repeater/Terminal or Base-station → Terminal link is active only in an assigned time-slot;

wherein said repeaters distribute data packets to or from terminals in said time-slots by scheduling non-interfering links to transmit at a same time.

5. (Original) The network of Claim 1, wherein a sector of each base-station having a first frequency band is at least a cell radius away from another sector having said first frequency band.

6. (Original) The network of Claim 1, wherein sectors with a same carrier and time-slot assignment are located a cell radius away from each other.

7. (Original) The network of Claim 1, wherein communication with nodes in a sector that cannot communicate directly with said base-station is done through a first set of repeaters in a sector;

wherein data packets from said base-station to a node are switched to said node through multiple hops; and

wherein data packets from a node are transmitted through multiple hops to said base-station.

8. (Original) The network of Claim 1, wherein capacity of a base-station is increased by adding more carriers.

9. (Original) The network of Claim 7, wherein carriers are added sector by sector; wherein a different base-station ratio is provided for each sector for each carrier.

10. (Original) The network of Claim 9, wherein at least a second set of first level repeaters is provided to communicate with said base-station on different carriers at the same time.

11. (Original) The network of Claim 9, wherein other nodes in each sector must switch to different carriers for in-sector time-slots.
12. (Original) The network of Claim 1, wherein each sector in said network represents a tree structure rooted at said base-station.
13. (Original) The network of Claim 1, further comprising:
a plurality of links that use any of two types of time-slots for communication, wherein said time slots comprising long time slots and short time slots.
14. (Original) The network of Claim 13, wherein long time-slots are spectrally efficient and are adapted to transmit a large number of bytes in each time-slot.
15. (Previously Presented) The network of Claim 14, wherein said base-station communicates with level-1 repeaters (R1) using long time-slots, wherein said time-slots carry substantially all packets in said network destined to or from repeaters and terminals connected thereto.
16. (Original) The network of Claim 13, wherein short time-slots have about 20% the capacity and 25% the duration of the long time-slots.
17. (Original) The network of Claim 16, wherein substantially all Repeaters → Repeater/Terminal and Base-station → Terminal links use short time-slots.
18. (Original) The network of Claim 16, wherein short time-slots are time-multiplexed to maximize utilization of spectrum and reduce latency.
19. (Currently Amended) A base station, comprising:
a plurality of sectors [;], each of which comprises:

~~a plurality of terminal nodes, said terminal nodes comprising both indoor terminal nodes; and~~

outdoor terminal nodes[,]; and ~~comprising~~

~~a plurality of outdoor repeaters, wherein each of the plurality of terminal nodes indoor and outdoor terminal nodes comprises an antenna, wherein said nodes in each section are arranged in a tree structure starting from said base-station, wherein said base-station sectors use different frequency bands that are located in alternate sectors of said base-station; and~~

a module for interference management and sector reuse comprising network management of frequency, time, and directionality.

20. (Previously Presented) The base station of Claim 19, wherein the base station operates in a network comprising:

at least one Base-Station → Level1-repeaters link; and

at least one Repeater → Repeater/Terminal or Base-station → Terminal link.

21. (Previously Presented) The base station of Claim 20, wherein said Base-Station → Level1-repeaters link can be active in all sectors in all cells simultaneously due to of transmitter and receiver antenna directionality;

wherein a predetermined percentage of all time-slots are preferably reserved for Base-Station → Level1-repeaters links.

22. (Previously Presented) The base station of Claim 20, wherein said in-section Repeater → Repeater/Terminal or Base-station → Terminal link is active only in an assigned time-slot;

wherein said repeaters distribute data packets to or from terminals in said time-slots by scheduling non-interfering links to transmit at a same time.

23. (Previously Presented) The base station of Claim 19, wherein a sector of each base-station having a first frequency band is at least a cell radius away from another sector having said first frequency band.

24624. (Currently Amended) The base station of Claim 19, wherein sectors with a same carrier and time-slot assignment are located a cell radius away from each other.

25. (Previously Presented) The base station of Claim 19, wherein communication with nodes in a sector that cannot communicate directly with said base-station is done through a first set of repeaters in a sector;

wherein data packets from said base-station to a node are switched to said node through multiple hops; and

wherein data packets from a node are transmitted through multiple hops to said base-station.

26. (Previously Presented) The base station of Claim 19, wherein capacity of the base-station is increased by adding more carriers.

27. (Previously Presented) The base station of Claim 26, wherein carriers are added sector by sector;

wherein a different base-station ratio is provided for each sector for each carrier.

28. (Previously Presented) The base station of Claim 27, wherein at least a second set of first level repeaters is provided to communicate with said base-station on different carriers at the same time.

29. (Previously Presented) The base station of Claim 27, wherein other nodes in each sector must switch to different carriers for in-sector time-slots.

30. (Previously Presented) The base station of Claim 19, wherein each sector in said network represents a tree structure rooted at said base-station.

31. (Previously Presented) The base station of Claim 19, wherein the base station operates in a network comprising:

a plurality of links that use any of two types of time-slots for communication, wherein said time slots comprising long time slots and short time slots.

32. (Previously Presented) The base station of Claim 31, wherein long time-slots are spectrally efficient and are adapted to transmit a large number of bytes in each time-slot.

33. (Previously Presented) The base station of Claim 32, wherein said base-station communicates with level-1 repeaters (R1) using long time-slots, wherein said time-slots carry substantially all packets in said network destined to or from repeaters and terminals connected thereto.

34. (Previously Presented) The base station of Claim 31, wherein short time-slots have about 20% the capacity and 25% the duration of the long time-slots.

35. (Previously Presented) The base station of Claim 34, wherein substantially all Repeaters → Repeater/Terminal and Base-station → Terminal links use short time-slots.

36. (Previously Presented) The base station of Claim 34, wherein short time-slots are time-multiplexed to maximize utilization of spectrum and reduce latency.

37. (New) The mesh access network of Claim 1, wherein the at least one base station is operatively configured to utilize a minimum of 2 frequency bands.

38. (New) The mesh access network of Claim 37, wherein the at least one base station is a dual-band base station.